NOTES.

A FAMOUS American, who did much to promote friendly relations between Great Britain and the United States, died in New York on Tuesday, May 15, in the person of Mr. J. H. Choate, United States Ambassador to Great Britain from 1899 to 1905. His eloquence and his influence during this term of office made enduring impressions upon the British people, who will always associate him with Anglo-American goodwill. Mr. Choate was a trustee of the American Museum of Natural History, and a member of the American Philosophical Society. Honorary degrees were conferred upon him by many universities, among them being Edinburgh and Cambridge (1900), Oxford and St. Andrews (1902), and Glasgow (1904).

THE death is announced, at seventy-four years of age, of Prof. L. J. Landouzy, professor of clinical medicine in the University of Paris, and author of "Les Sérothérapies" and many other works.

ANNOUNCEMENT has been made already of the decision of the council of the British Association not to hold the usual annual meeting this year, on account of travelling restrictions and difficulties of accommodation at Bournemouth, caused by conditions of war. It is necessary, however, to hold a formal meeting in order to bridge over the gap between the meeting at Newcastle-upon-Tyne last year and that which it is hoped to hold at Cardiff in 1918. Arrangements have been made, therefore, for meetings of the council of the association, the General Committee, and the Committee of Recommendations to be held in London on Friday, July 6, in order to make appointments, receive the report of the council for the year, and transact other necessary business.

A FEW days ago a correspondent of the *Daily Mail* resuscitated a well-known quotation from George Gissing's "Private Papers of Henry Ryecroft," in order to associate science with the horrors of the present war. The words are as follows:—"I hate and fear 'science' because of my conviction that, for long to come, if not for ever, it will be the remorseless enemy of mankind. I see it destroying all simplicity and gentleness of life, all the beauty of the world; I see it restoring barbarism under the mask of civilisation; I see it darkening men's minds and hardening their hearts; I see it bringing a time of vast conflicts, which will pale into insignificance 'the thousand wars of old,' and, as likely as not, will whelm all the laborious advances of mankind in blood-drenched chaos." We have on several occasions pointed out that it is merely pandering to popular prejudice to make science responsible for German barbarity or for the use of its discoveries in destructive warfare. Chlorine was used as a bleaching agent for much more than a century before the Germans first employed it as a poison gas; chloroform is a daily blessing to suffering humanity, but it is also used for criminal purposes; potassium cyanide may be used as a poison or to extract precious metals from their ores; and so with other scientific knowledge—it can be made a blessing or a means of debasement. The terrible sacrifice of human life which we are now witnessing is a consequence of the fact that the teaching of moral responsibility has not kept pace with the progress of science. As in medieval times all new knowledge was regarded as of diabolic origin, so even now the popular mind is ever ready to accept such views of the influence of science as are expressed in Gissing's work. The pity of it is that the public Press does nothing to dispel illusions of this kind by urging that what is wanted is not less scientific knowledge, but a higher sense of human responsibility in the use of the forces discovered.

MR. HAROLD FIELDING-HALL, who died on May 5, was a coffee-planter in Burma, and later a distinguished political officer in that province. He was an ardent student of Buddhism from the idealistic point of view, and his chief work, "The Soul of a People," did much to encourage the study of Buddhism in Europe and America. But, in the opinion of practical observers, its tendency was to ignore the popular and less admirable development of the faith in the East, while insisting on the value of its philosophical aspects.

THE Government Central Control Board has appointed an advisory committee, consisting of Lord D'Abernon (chairman), Sir G. Newman, Dr. A. R. Cushny, Dr. H. H. Dale, Dr. M. Greenwood, jun., Dr. W. McDougall, Dr. F. W. Mott, Dr. C. S. Sherrington, and Dr. W. C. Sullivan, to consider the conditions affecting the physiological action of alcohol, particularly the effects on health and industrial efficiency produced by the consumption of beverages of various alcoholic strengths, with special reference to the recent orders of the Central Control Board, and further to plan out and direct such investigations as may appear desirable with the view of obtaining more exact data on this and cognate questions.

AT the general meeting of the members of the Royal Institution on May 7 a letter was read from the distinguished mathematician, M. Paul Painlevé, the French Minister of War. After thanking the members for electing him an honorary member of the Royal Institution, an honour which has been conferred on few Frenchmen, M. Painleve went on to say:—"Ce qui me fait, ensuite et surtout, attacher un prix particulier à l'honneur d'avoir été choisi par vous pour faire partie de votre Assemblée, c'est que ce choix s'est manifesté en pleine guerre alors que nos deux pays combattent côte à côte le combat du droit. Puissent ainsi toutes les forces intellectuelles et toutes les ressources scientifiques de l'Angleterre et de la France hâter la victoire de nos armes et assurer pour jamais dans le monde la suprématie de la pensée sur la violence."

THE seventh annual report of the Illuminating Engineering Society was presented at the annual meeting on May 15. The society, dealing with scientific and industrial aspects of a wide subject, unites on common ground electrical engineers, gas engineers, manufacturers of lamps and shades, physicists, ophthalmic specialists, architects, and surveyors. This branch of engineering has been recognised by the appointment, under the Department of Scientific and Industrial Research, of a Joint Committee on Illuminating Engineering. The successful union of these various interests is largely due to the efforts of the hon. secretary, Mr. Leon Gaster, during the last ten years. Mr. Gaster is a British subject of Rumanian origin, and is thus doubly associated with the cause of the Allies. All the male members of his family in Rumania and in England who are of military age are fighting for this cause, and one of his nephews was recently killed in Rumania.

CONSIDERABLE progress has, we learn, been made with the proposal to establish a national memorial to the late Capt. F. C. Selous, D.S.O., who, it will be recalled, was killed in action while leading his men in an attack on a German post in East Africa early in January last. An influential and representative committee has been formed under the chairmanship of the Rt. Hon. E. S. Montagu, M.P., with Mr. E. North Buxton and the Hon. W. P. Schreiner, C.M.G., as vice-chairmen. Among others who have joined the committee are Viscount Buxton, G.C.M.G., the Earl of Coventry, Dr. David (Headmaster of Rugby), Lord Desborough, K.C.V.O., Viscount Grey of Fallodon, K.G., Col. T. Roosevelt, Lt.-Gen. J. C. Smuts, and representatives of the Royal Geographical Society, the Zoological Society, the Entomological Society, the British Ornithologists' Union, the Royal Colonial Institute, and the British South Africa Company. The committee has decided, with the permission of the trustees of the British Museum, to place a mural tablet in the Natural History Museum, where many of Selous's finest trophies are exhibited, but the very encouraging response which has been received to the proposal for a national memorial of the great hunter, explorer, and naturalist indicates that there is a general desire that some additional form of perpetuating his memory should be established. Several suggestions have been considered, and it is hoped that at least it will be possible to found a Selous scholarship at Rugby (his old school), for the sons of officers, primarily of those who have fallen in the war. The hon. secretary to the Memorial Committee is Mr. E. Stuart Baker, 6 Harold Road, Norwood. Subscriptions should be sent to Mr. C. E. Fagan, hon. treasurer, Selous Memorial, Natural History Museum, South Kensington, London, S.W.7.

We learn with regret that on April 30 Arnold Lockhart Fletcher died in a Red Cross hospital at Rouen of wounds received some days earlier at the front. Prof. J. Joly writes:—Arnold Fletcher was born in 1889. He was a graduate of Trinity College, Dublin, and obtained the degree in civil engineering in 1909. Shortly afterwards he was appointed research assistant in the department of geology and mineralogy in Trinity College. In 1910 he took part in communicating a paper on "Pleochroic Haloes" to the *Philosophical Magazine*. In the same year he commenced work on the radium content of rocks. He dealt successively with the rocks of the Transandine tunnel (*Phil. Mag.*, July, 1910) and with the Leinster Granite (*Phil. Mag.*, January, 1911). In the latter materials he also made determinations of thorium content. He directed special attention to the remarkably uniform ratio between the quantities of the two radio-active families present, a peculiarity since noticed in other cases. The Antarctic rocks followed (*Phil. Mag.*, June, 1911). Finally, he undertook a very complete examination of the secondary rocks (*Phil. Mag.*, February, 1912) In this research the fusion method was used, and the utmost care taken to eliminate errors. This work is entitled to rank as the best that has been done on these materials. Fletcher contributed a paper on sublimates, obtained at high temperatures, to the Royal Dublin Society in 1913. In the same year an account of a method of finding the radium content of radium-rich minerals by fusion on a carbon hob appeared in the *Phil. Mag*. This last work was done in the Royal College of Science for Ireland. In 1913 Fletcher entered the service of the Irish Department of Agriculture and Technical Instruction as inspector, an institution of which his father—Mr. George Fletcher—is assistant secretary in respect of technical instruction. Shortly after the war broke out Arnold Fletcher applied for a commission, and was gazetted in the Leinster Regiment in April, 1915. At the time of his death he was attached to a machine-gun corps. Fletcher possessed qualities which contribute to success in scientific work: patience, enthusiasm, manipulative skill, determination, and the power of overcoming experimental difficulties. In his brief life he did work which must find permanent record among the data of science. Along with this claim, the claim of his sacrifice to his country must for ever remain. When the war is over men of science should see to it that some national memorial to such lives be raised.

The *National Geographic Magazine* for February publishes a well-illustrated article by an anonymous writer on "Our Foreign-born Citizens," in which the past and future of emigration into the United States are discussed. The literary test recently imposed will turn back one-fourth of the Armenians, two-fifths of the Serbians, Bulgarians, and Montenegrins, more than a fourth of the Jews and Greeks, more than half the South Italians, more than a third of the Poles and Russians, and a fourth of the Slovaks. More than 33,000,000 of people have already crossed the Atlantic, of which Great Britain and Ireland have contributed 8,500,000 and Germany more than 6,000,000. Ireland with more than 4,000,000, Great Britain with about 4,000,000, and Scandinavia with 2,000,000 have, together with Germany, contributed more than half the emigrants since the beginning of the Revolutionary War. It is estimated that the United States will have a population of nearly 500,000,000 in 2217, or approximately 166 to the square mile But there is little danger of congestion, as statisticians estimate that the country has a sustaining power of 500 to the square mile, and assuming that one-third of the country is occupied by waste land, it will, on this basis, have room for a population of 900,000,000.

Mr. Edward Clodd contributes to the *Fortnightly Review* for May an interesting article on Dr. Johnson and Lord Monboddo. An attractive picture is given of the active-minded judge, who, in his "Origin and Progress of Language" (1773–92), was one of the first to suggest man's relationship with the higher apes. There was considerable absurdity in Lord Monboddo's statement of his theory, but that it was a flash of genius is indubitable. Laughed at by his contemporaries, and ridiculed by the conservative Johnson, Monboddo was far ahead of his time. "Some of his speculations were anticipations of discoveries which have revolutionised thought and opinion in all directions; his was the creeping of the dawn when old things were passing away and all things were to become new." There is something fine in the conclusion of his long exposition of the resemblances between man and the apes: "That my facts and arguments are so convincing as to leave no doubt of the humanity of the orang-utan, I will not take upon me to say; but this much I will venture to affirm, that I have said enough to make the philosopher consider it as problematical, and a subject deserving to be inquired into. . . ." Mr. Clodd shows the naturalness of Johnson's attitude to Monboddo's subversive views. "But that attitude should convey the lesson to keep an open mind towards all matters, especially those that collide with our prejudices and contradict our 'certainties.'" As a wise Frenchman said, "Because science is sure of nothing, it is always advancing."

Mr. J. Harold Williams contributes a study of heredity and juvenile delinquency to the *Eugenics Review* for April (vol. ix., No. 1). Twelve family histories are considered, and indicate the extreme importance of heredity in delinquency. At the same time, even in feeble-minded children delinquency is directly a product of environment. In nature and nurture, therefore, not separately, but collectively, must we look for an improved social being. The discussion on the disabled sailor and soldier and the future of our race, celebrating the Galton anniversary on February 16, is also included in this issue of the review.

The National Clean Milk Society has issued a report of an investigation into the hygienic quality of the milk supplied to babies attending certain schools for mothers. The milk was supplied by twenty-seven dealers, and a sample from each was examined. Only six of the samples contained not more than 500,000 bacteria per cubic centimetre; one contained more than 100,000,000. Two of the samples contained tubercle bacilli. Hints are also given how to inquire about the domestic milk supply, and details are given of the milk supply in certain American cities. The National Clean Milk Society (2 Soho Square, W.1) is doing good work and national service in trying to raise the standard of our milk supply. Its membership is open to all, and additional members are much needed.

A bee disease entitled "Sacbrood" is described by G. F. White in Bulletin 431 of the U.S. Department of Agriculture. This is not a new disease, but appears to have been included by bee-keepers under "pickled brood," a term which has acquired a very comprehensive meaning. "Sacbrood" attacks the larvæ in various stages, and is shown by the author to be transmitted in a "filterable virus"; no definite micro-organism can be detected.

A communication has reached us from Mr. Timmler, a civil servant in British conquered territory, German East Africa, New Langenburg, on the subject of the destruction of tsetse-flies. It is the somewhat surprising one of "gassing" the flies with a gas preferably innocuous to man, but fatal to the flies, or if deadly to man and flies, the use of masks, etc., would become imperative while operations were proceeding. The suggestion is that the monsoons would carry the gas across the fly-infested areas. We regard the proposal as impracticable, but an experiment would be better than any expression of adverse opinion.

An interesting lecture by Mr. Govindam, Deputy Director of Fisheries for Madras, is published in the "Book of the Madras Exhibition, 1915–16." Huge quantities of the Indian "oil sardine" have always been available on this coast, and formerly these fish were converted into a manure by simple drying on the beach. An intolerable nuisance, described as "the first line of coast defence," was the result, and the fertiliser produced was poor in quality. In 1909 the Fisheries Department introduced a simple method of expressing the oil and drying the resulting fish-cake to form a kind of guano of value as a fertiliser, since it contained little oil. The method was extensively copied by the natives, with the result that the value of the oil obtained rose from Rs.52,630 in 1910–11 to Rs.2,29,014 in 1913–14, while the corresponding values of the fish guano produced were Rs.13,648 and Rs.4,03,787.

Up to the present this year we have only received the first number of the *Kew Bulletin,* and it contains articles mainly of importance for the Colonies and India. There is a long systematic account of the fungus flora of the Uganda forests, which is the first attempt to give a comprehensive account of the fungi of this region, and is a useful step in the direction of the preparation of a fungus flora of tropical Africa. As regards India, several new species of plants are described by Mr. Gamble, which will be incorporated in his "Flora of Madras," now in course of publication.

The fungus diseases of Para rubber, *Hevea brasiliensis,* appear to be assuming rather large proportions, and are occupying the attention of mycologists in the East to a considerable extent. The species of Phytophthora which attacks the tapped areas of the stems forms the subject of a paper by Mr. J. F. Dastur in the Memoirs of the Department of Agriculture in India (vol. viii., No. 5, 1916). The fungus which is known as "black thread" causes black stripes on the tapping area, and is a serious disease in preventing the proper healing of the tapped surfaces. The black thread of Burma appears to be distinct from the disease of the same name recorded from Ceylon, which is due to *Phytophthora Faberi,* also the cause of a bad cocoa disease, and this fungus not only occurs as a canker on the stems, but also badly affects the seeds of Hevea. Remedial measures are discussed for the Burmese species, but the most efficacious measure appears to be to abstain from tapping the diseased trees during the rainy season. Accounts published of other fungus diseases of Para rubber in the Federated Malay States show that the future of the rubber industry may cause some anxiety.

The council of the Royal Agricultural Society has just issued the first of a proposed series of "Occasional Notes," by means of which it is hoped that the members may be kept more or less continuously in touch with the work carried on by the scientific officers of the society. The first number includes a note by Sir John McFadyean on joint-ill in foals; notes by Prof. Biffen on seeds, eradication of weeds in meadowland, and the spraying of potatoes for the prevention of "blight"; notes on insect pests by Mr. Cecil Warburton, and on certain points of interest in connection with fertilisers and feeding-stuffs by Dr. J. A. Voelcker. The matters dealt with are such as have previously been dealt with only in the annual reports of the officers, but through the medium of these periodical notes a more rapid and timely dissemination of information and advice will be secured, and the efficiency of the society's advisory work correspondingly increased. Reference may also be made to an excellent leaflet on the ox warble-fly, or bot-fly, which has been drawn up by Mr. Warburton and issued by the society.

An interesting report by Prof. V. H. Blackman and Mr. I. Jörgensen on the results obtained in 1916 in field investigations into the effect of overhead electric discharge upon crop production appears in the April number of the *Journal of the Board of Agriculture.* The experiments, which are a continuation of those initiated by Prof. J. H. Priestley, were carried out, as in previous years, at Lincluden Mains Farm, Dumfries, under the supervision of Miss E. C. Dudgeon. A uniform field of nine acres was used for the purpose, one acre being selected as the electrified area and two half-acre plots as controls. In comparison with previous years the charged wires were lower and closer together, so that the intensity of the discharge received by the crop was much increased. Oats were sown on March 27, and by May 16 the crop on the electrified area had established a marked lead, which it retained to the end. The discharge was applied for 848 hours during the season, being used only in the daytime and discontinued during actual rain. The final results showed for the electrified area the astonishing increases over the average of the control areas of 49 per cent. in grain and 88 per cent. in straw, the increased value of the crop being estimated at 6*l.* 7*s.* per acre. The cost of the current used, if taken at 1*d.* per unit, amounted to only 11*s.* The further interesting observation was made of a marked "after-effect" on the electrified area used in the previous year the clover crop which succeeded the oats being much better on this area than on the rest of the field. It is pointed out in conclusion that many points still remain to be investigated before the use of the overhead electric discharge can be definitely recommended as a sound extension of agricultural practice.

THE growing importance of magnesite as a refractory material and for use in magnesian cement has led to its exploitation at the mining township of Bulong, in the N.E. Coolgardie Goldfield of Western Australia (F. R. Feldtmann, in Ann. Report Geol. Surv. of W. Australia for 1915). The material requires picking from the serpentine in which it occurs, but veins up to 2 ft. in thickness have been traced. In this, as in other instances, the magnesite is held to have been formed by waters containing carbon dioxide permeating a decomposing igneous complex of basic character.

WE have received from Mr. David Currie a letter relating to the article on "Empire Development and Organisation" which appeared in our issue of April 26. He directs attention to the fact that, although Canada is by far the largest producer of raw asbestos, Russia mines a substantial amount of this mineral, and Rhodesia is being developed as an important field. He regards the statement that the United Kingdom is largely dependent on outside sources, especially the United States, for its manufactured asbestos as incorrect, affirming that the imports from the States are "insignificant and even less than our exports to the States, in spite of the prohibitive tariff." The authority for the statement challenged by Mr. Currie is contained in paragraph 336 of the Blue Book Cd. 8462. Moreover, in the appendix (p. 172) the Commissioners state:—"It is to be noted that the United Kingdom, although possessing the most up-to-date plants and methods, is largely dependent on foreign sources for the manufactured asbestos it uses. In 1913 the net imports of asbestos manufactures were valued at 232,000*l.*, while the exports of asbestos manufactured in the United Kingdom (excluding engine packing) were valued at 105,000*l.* Quantities and countries of origin are not recorded."

THE *Revue générale des Sciences* for March 15 contains a clearly written and readable article on telemeters by Prof. H. Pariselle, of the French Naval School. It explains the principles on which telemeters act and describes the best-known instruments of each type. For infantry fire a simple and robust instrument is necessary, and no high degree of accuracy can be expected. A triangular slit in a small sheet of metal, held at arm's length and moved until a soldier seen at a distance fills the interval between the top and bottom edges of the slit, is a popular form of instrument, and is fairly accurate at small distances. For greater distances some form of double-image field glass or telescope has been much used. The two images of a soldier may be arranged to fall in the same vertical line, and the point on the upper image, at which the top of the head of the lower appears, may be noted, and the distance determined from its position. For the use of the artillery much more accurate instruments are necessary, and some form of double-image instrument, using a short base from the ends of which the two views of the object are taken, has come into universal use. The Barr and Stroud instruments use bases from 80 cm. to 274 cm., the shorter in field work and the longer in the Navy. Recently the Lawford-Copper instrument, on similar lines to the Barr and Stroud, but with a variable base, has been introduced.

WRITING in the *Scientific American* for April 21, Mr Ellwood Kendrick deals with recent chemical developments in America. He points out that in treating metals the manufacturer has gone ahead by leaps and bounds, the reason being that, beginning with Andrew Carnegie and the Pittsburgh ironmasters, the chemist has been called in. He has also been welcomed in the petroleum industry, in the making of explosives, and latterly in the manufacture of coal-tar and other products. In other fields the chemist has not been wanted; the dread of the theorist has kept the doors of certain industries closed to him, with consequent waste and loss. After reference to the growing use of ferments and bacteria in chemical industry, Mr. Kendrick deals with a recent article on nitro-starch as an explosive The difficulties with this nitro-product have been, in the first place, lack of stability when made by any practical method, and, secondly, difficulties in nitration owing to clotting, etc It is claimed that the problem of producing a permanent nitro-starch has now been solved. By working up 80 to 85 per cent. with nitroglycerine a suitable explosive is obtained, and comparison is made between it and dynamite. Nitro-starch is claimed to be the cheapest of all high explosives. With present food problems, however, it can have no immediate interest for Europe. It is also stated that a licence has been granted in Switzerland for the manufacture of alcohol, primarily for industrial purposes, from calcium carbide. The works will be built at Visp.

THE annual general meeting of the Society of Chemical Industry is provisionally fixed to be held at the University of Birmingham on July 18–20. The following papers are promised:—"Chemical Porcelain," H. Watkins; "Duro-Glass," Dr. M. W. Travers; "British Sources of Sand for Glass and Metallurgical Work," Dr. P. G. H. Boswell; "Refractory Materials," W. C. Hancock; "Synthetic Nitrates," E. K. Scott; "Nitrates from the Air," Dr. Maxted; "Low-temperature Distillation Fuel," Prof. O'Shea; "Industrial Fuel from Gas Works," E. W. Smith; "Calorific Value of Industrial Gaseous Fuel," W. J. Pickering; "High-pressure Gas for Industrial Purposes," Mr. Walter; "Some Sources of Benzol and Toluol for High Explosives," T. F. E. Rhead; "Artificial Silk," L. P. Wilson; "Activated Sludge Process," E. Ardern; "Organisation of Industrial Research," H. W. Rowell; "Scheme for Co-operative Industrial Research," H. W. Rowell; "Vulcanisation of Rubber," Dr. D. F. Twiss.

OUR ASTRONOMICAL COLUMN.

COMET 1917*a* (MELLISH).—The following revised ephemeris for this comet, based upon a new orbit calculated from observations made on March 21, April 4. and April 20, has been received from Copenhagen:—

1917	R.A.			Decl.	Log Δ	Mag
	h.	m.	s.			
May 27	1	56	28	−12 56·2	0·2236	7·2
June 4	2	7	28	14 11·5	0·2419	7·5
12		16	53	15 31·8	0·2559	7·8
20		24	45	16 59·8	0·2666	8·0
28		31	5	18 37·3	0·2748	8·2
July 6		35	46	20 25·6	0·2810	8·4
14		38	46	22 24·2	0·2859	8·6
22	2	39	54	−24 33·1	0·2901	8·7

The comet is now too far south for observation in Europe. It was apparently this comet which was observed in Australia on April 19, and described as a new comet (see NATURE, April 26, p. 172).